

ABSTRACT

A LAN adapter device using an interpolative equalizer. The LAN adapter device allows LAN computing devices to connect to the LAN medium. The adapter devices are internal or external to the LAN devices and provide a transceiver and protocol stacks for the LAN devices to communicate with each other. The physical layer of the transceivers includes transmitter having a DMT modulator and demodulator that is dynamically configurable with respect to data rate and spectrum usage. Within the receiver is an equalizer that equalizes the received signal with a simple yet effective equalizer training method, thereby obviating the need for extensive equalizer training and long-term coefficient storage. The equalizer trains on known symbols transmitted on specific carriers that are spaced apart in the frequency domain and then determines the channel response at those frequencies. The remaining carriers that are modulated with data are equalized based on an estimate of the channel response determined from interpolating between the points previously determined from the known symbols.